

allowed, and claims 1-27 were rejected under 35 U.S.C.102(b) as anticipated by Weis U.S. Patent No. 5,808,779.

Applicant acknowledges that formal drawings will be required when the application is allowed.

The Office Action contains the following description of the Weis reference at the bottom of page 2 and the top of page 3: "...Weis discloses an oilfield monitoring system comprising: ... a plurality of optical sensors coupled with the optical fiber (ref 330, 340,350, 360) ... Weis further discloses that the optical sensor-comprises an intrinsic fiber sensor made up of a Bragg grating encircled by coating that converts a non-optical signal into strain on the fiber Bragg grating (col. 6, lines 50-60) ... Referring to claim 4, Weis further discloses that the optical sensor also includes one of a variety of sensors described in the claim (col.6, lines 35-65) ...". Applicant disagrees with this characterization of the Weis reference and believes that the difference between an "optical sensor", as this phrase is used in the present application, and a fiber Bragg grating element, such as those described in the Weis reference has not been appreciated.

As noted on page 1, lines 15-17, of the present application: "**Fiber optic sensors** have been developed to **measure** a number of **environmental effects**, such as position (linear, rotational), fluid level, temperature, pressure, strain, pH, chemical composition, etc. ..." (emphasis added). The fiber Bragg gratings shown in Weis are not optical sensors because they are not configured to measure environmental effects. The Weis fiber Bragg gratings are part of an electro-optical data telemetry system that allows an electrical signal generated by a non-optical sensor that responds to a physical parameter of interest to be transmitted to the surface.

As noted in column 6, lines 46-59, of Weis: "The response from any type of sensor (e.g. nuclear, electromagnetic, acoustic, pressure, temperature, torque, strain, etc.) is converted to an electrical signal which is applied to the piezoelectric crystal. ... This electrical output, when applied to the piezoelectrical crystal, deforms or perturbs the affixed Bragg grating". There is no teaching or suggestion in Weis that this "sensor" may be an intrinsic or extrinsic optical sensor. The fact that the sensor response in Weis is "converted to an electrical signal which is applied to the piezoelectric crystal" teaches away from using an intrinsic or extrinsic optical sensor for sensor element 331, 341, 351, or 361 in Weis.

As noted in column 10, lines 37-39, of Weis: "... the PZ crystal component 28 of the grating-PZ element 70 is affixed to the grating 38 by means of an adhesive or other suitable bonding material". The gratings in Weis do not act as intrinsic or extrinsic optical sensors that measure environmental effects. To properly perform their function, as described in the Weis reference, the gratings must be isolated from the local environment, such as by bonding the PZ crystal to the grating with an adhesive.

Applicant has disclosed and claimed a sensor-telemetry system that includes at least one optical sensor, at least one non-optical sensor, and an optical fiber coupled with the optical sensor and the non-optical sensor and arranged to carry signals outputted from the optical sensor and the non-optical sensor. This concept is not disclosed or suggested by the Weis reference. The Bragg gratings in Weis are not optical sensors and the optical fiber in Weis does not carry different signals, some output from Bragg gratings 330, 340, 350, and 360 and others output from non-optical sensors 331, 341, 351, and 361. A proper prima facie showing of anticipation has simply not been made in the Office Action.

Reconsideration and withdrawal of this rejection is respectfully requested.

Issuance of a Notice of Allowance in this case is respectfully requested. If the Examiner is contemplating any action other than allowance of claims 1-27, the Examiner is

urged to contact Applicant's representative by telephone at 203-431-5506 or by email at wbatzer@ridgefield.oilfield.slb.com to discuss this case further and possibly to arrange a telephone interview.

In the event that a fee is due in connection with this Response, the Commissioner is hereby authorized to charge any underpayment to Deposit Account No. 19-0615.

Respectfully submitted,

By: 

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